

CLAIMS

1. A centrifugal fan (4, 104, 204, 304, 404) that sucks in air from a rotary shaft direction and blows air out in a direction that intersects a rotary shaft (41a), comprising:

an electric motor (41) having said rotary shaft;

a main plate (43, 143, 243, 343, 443) having a cooling air hole (43a, 143a, 243a, 343a, 443a) and being coupled to and rotationally driven by said rotary shaft;

a plurality of blades (44) provided on the surface of said main plate on the side opposite an electric motor and at a position on the outer peripheral side of the radial position of said cooling air hole; and

an air guide (52, 152, 252, 352, 452) that, after a portion of the blown out air has been guided to the vicinity of said electric motor and has cooled said electric motor, guides the air flow so that the revolving direction velocity decreases when blown out from said cooling air hole to the side of said main plate opposite said electric motor.

2. A centrifugal fan (4, 104, 204, 304, 404) that sucks in air from a rotary shaft direction and blows air out in a direction that intersects a rotary shaft (41a), comprising:

an electric motor (41) having said rotary shaft;

a main plate (43, 143, 243, 343, 443) having a cooling air hole (43a, 143a, 243a, 343a, 443a) and being coupled to and rotationally driven by said rotary shaft;

a plurality of blades (44) provided on the surface of said main plate on the side opposite an electric motor and at a position on the outer peripheral side of the radial position of said cooling air hole; and

an air guide (52, 152, 252, 352, 452) that, after a portion of the blown out air has been guided to the vicinity of said electric motor and has cooled said electric motor, guides the air flow so that it is blown out toward the side of the main plate in the counter rotational direction when blown out from said cooling air hole to the side of said main plate opposite said electric motor.

3. The centrifugal fan (4, 104) as recited in Claim 1 or Claim 2, wherein
said air guide (52, 152) is formed integrated with said main plate (43, 143).

5 4. The centrifugal fan (204, 304, 404) as recited in Claim 2, further comprising:
a cover (246, 346, 446) that covers said cooling air hole (243a, 343a, 443a) from the
side opposite the electric motor, and that is provided so that it rotates integrally with
said main plate (243, 343, 443);

wherein,

10 said air guide (252, 352, 452) is formed between said cover and said main plate.

5. The centrifugal fan (204, 304, 404) as recited in Claim 4, wherein
said air guide (252, 352, 452) has a blade shape inclined rearwards in the rotational
direction of said cover (246, 346, 446).

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6. The centrifugal fan (204) as recited in Claim 5, wherein
said air guide (252) has a volute blade shape.

7. The centrifugal fan (204, 304) as recited in any one claim of Claim 4 through Claim 6
20 wherein

said air guide (252, 352) is formed in said cover (246, 346).

8. An air conditioner (1, 101, 201, 301, 401), comprising:

25 the centrifugal fan (4, 104, 204, 304, 404) as recited in any one claim of Claim 1
through Claim 7;

a heat exchanger (6) arranged on the outer peripheral side of said centrifugal fan; and

a casing (2) that houses said centrifugal fan and said heat exchanger.